**REVIEW FOR ECOLOGY UNIT TEST (ACADEMIC)**

**Topics Covered:**

* Ecology Vocabulary
* Sustainability
* Energy Flow in Ecosystems (including photosynthesis & cellular respiration)
* Food Chains, Webs, Ecological Pyramids & Ecological Niches
* Water & Carbon & Nitrogen Cycles
* Biotic & Abiotic Limiting Factors & Carrying Capacity
* Terrestrial Biomes & Aquatic Ecosystems
* Equilibrium, Primary & Secondary Succession
* Biodiversity & Classification of Species
* Habitat Loss & Fragmentation
* Invasive Species
* Pesticides & Bioamplification & Bioaccumulation
* Agriculture & Soil

**Vocabulary:**

* Atmosphere
* Biosphere
* Lithosphere
* Hydrosphere
* Habitat
* Ecosystem
* Biotic Factors
* Abiotic Factors
* Population
* Community
* Sustainable Ecosystem
* Radiant Energy
* Photosynthesis
* Cellular Respiration
* Producer
* Consumer
* Ecological Niche
* Food Chain
* Food Web
* Ecological Pyramid (Energy, Numbers & Biomass)
* Trophic Level
* Limiting Factor
* Tolerance Range
* Carrying Capacity
* Biome
* Equilibrium
* Primary Succession
* Secondary Succession
* Biodiversity
* Extinct
* Extirpated
* Endangered
* Threatened
* Special Concern
* Fragmentation
* Invasive Species
* Pest
* Pesticide
* Monoculture
* Fertilizer
* Bioaccumulation & Bioamplification

**Review Questions:**

1. a) Explain how the extinction of one species can affect the food chain in an

ecosystem?

1. Explain why the extinction of a species in a jungle ecosystem would have **less impact on the food** **chain** than the extinction of a species in a tundra ecosystem.

2. Consider the following food web: grass moose wolves crows

coyotes

**Table 1.** Consequences of removing the wolf population from the food web.

|  |  |  |
| --- | --- | --- |
| **Population affected** | **Increase or decrease?** | **Explanation** |
| Coyote |  |  |
| Moose |  |  |
| Grass |  |  |
| Crow |  |  |

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_What is the source of energy for organisms on Earth? (p. 38)

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ How much of the Sun’s energy warms the surface of the

Earth?

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ How much of the Sun’s energy is actually used by green

plants to make food?

6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ How much of the Sun’s energy is reflected by clouds or

the Earth’s surface?

7. **Table 2.** Energy transfer in food chains. (p. 43)

|  |  |  |  |
| --- | --- | --- | --- |
| **Energy level** | **Producer, primary consumer,**  **or secondary consumer?** | **Plant, herbivore, or carnivore?** | **Most energy, lesser energy, or least energy? (p. 24.)** |
| 3rd tropic level |  |  |  |
| 2nd tropic level |  |  |  |
| 1st tropic level |  |  |  |

8. What happens to the amount of energy through a food chain? Explain.

9. Review how to draw a pyramid of energy. (p. 45)

10. Plants undergo photosynthesis: CO2 + H2O 🡪 C6H12O6 + O2

carbon dioxide water sugar oxygen

Plants and animals undergo C6H12O6 + O2 🡪 CO2 + H2O

cell respiration: sugar oxygen carbon dioxide water

11. Explain how the processes of photosynthesis and cell respiration are considered to be “complimentary”. (p. 40)

12. Limestone rocks store inorganic carbon on the Earth. Where did this carbon come from? (p. 50)

13. Carbon dioxide (CO2) is the form of carbon in the atmosphere. How is carbon dioxide released into the atmosphere? (p. 50)

14. Oil and gas are other sources of organic matter, containing carbon. How is oil and gas formed? (p. 50)

15. Humans have cut down trees to use the land for farming or building cities. As a result, what has been happening to the oxygen levels and carbon dioxide levels in the atmosphere? (p. 49)

16. What are fertilizers? (p. 124)

17. Explain how excess fertilizers in the water can lead to forming algal blooms and killing fish and other aquatic organisms. (p.125)

18. What is the difference between primary and secondary succession? (p. 80)

19. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ What is the term for chemicals designed to kill

pests? (p. 133)

20. Describe three ways that pesticides are beneficial. (p. 133)

21. The Bald Eagle is a top carnivore, meaning that it doesn’t have many enemies. However, there are fewer Bald Eagles surviving over the years. Explain the effect of bioaccumulation on these birds. (p. 136)

22. **Table 3.** Biotic and abiotic limiting factors of population size. (p. 53-54)

|  |  |  |
| --- | --- | --- |
| Factor | Two factors that cause a population to increase | Two factors that cause a population to decrease |
| Abiotic (non-living) |  |  |
| Biotic (living) |  |  |

23. **Table 4.** Comparison between biomes in Canada. (p. 56 – 59)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Biome** | **Location**  (northern Canada, most of Canada, south of Canada, or southern Ontario?) | **Temperature** | **Precipitation** | **Major kind of plant** |
| **Tundra**  (p. 60) |  |  |  |  |
| **Boreal**  (p. 61) |  |  |  |  |
| **Mountain Forest Biome**  (p. 61) |  |  |  |  |
| **Grassland**  (p. 61) |  |  |  |  |
| **Temperate deciduous forest**  (p. 61) |  |  |  |  |

24. What is a monoculture? (Give an example as part of your description) (p. 121)

25. Why are monocultures more susceptible to pest infestations than natural ecosystems? (p. 122)

26. Human interference often causes ecosystems to change. Provide an example of how

human interference has caused:

a. an increase in the population of a species.

b. a decrease in the population of a species.

c. an increase to the amount of carbon that enters the atmosphere.

27. What is the difference between an artificial and a natural ecosystem? Give an

example of each. (p. 119)

28. Draw and label a diagram that shows how nitrogen moves through the nitrogen cycle. (p. 50)